



# Electricity

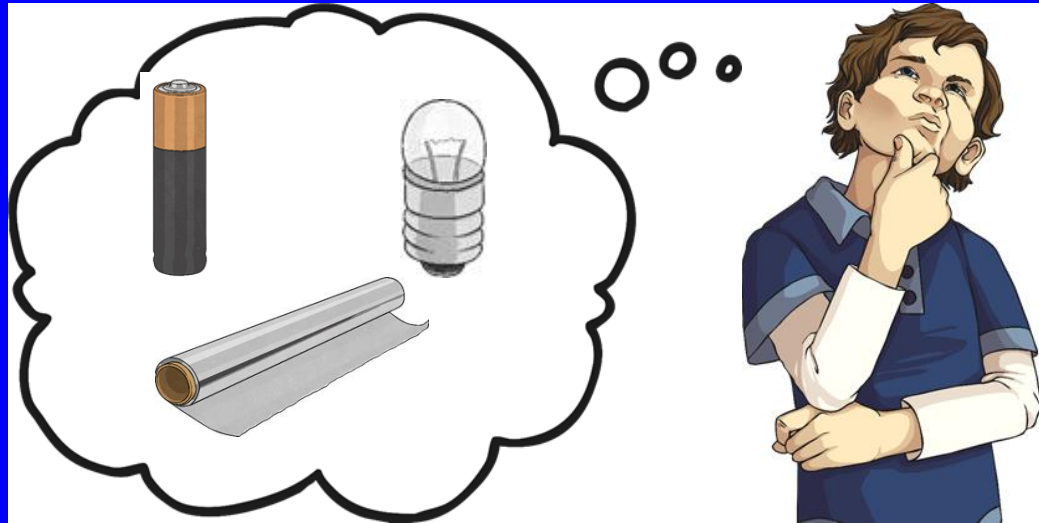
## Designing your own circuit



<https://youtu.be/MqHsKZNwiMA>

# Let us recap what we know about circuits!

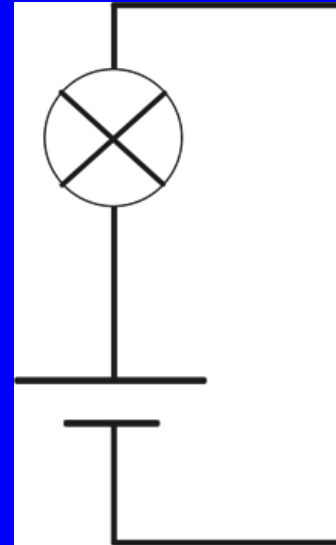
You have a single cell (no holder), a bulb and a piece of foil. Can you make the bulb light up?



Yes, you can!

Foil is made of aluminium, a type of metal and so is a conductor of electricity.

A complete circuit is where all the components of a circuit are joined up and there are no gaps. It will not work if there are any gaps between the components or if a component is broken.

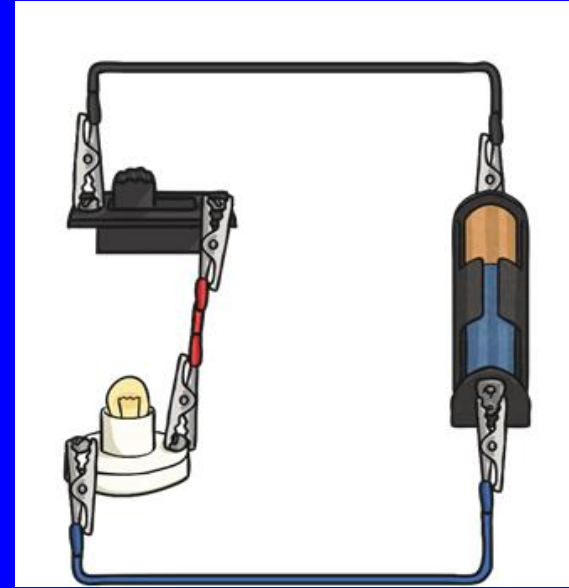
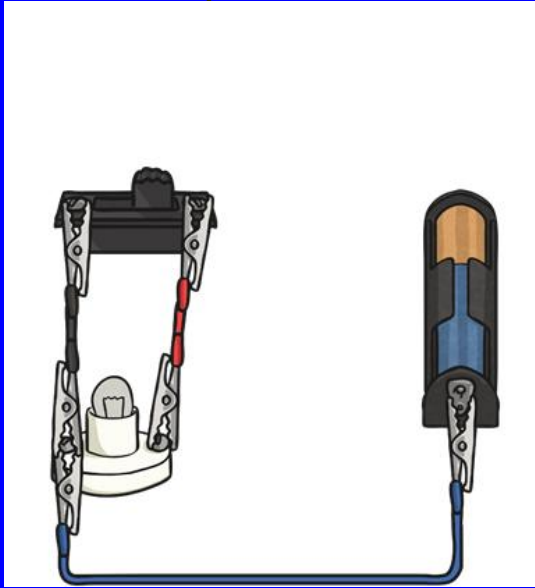


# Complete and Incomplete Circuits

An electrical circuit can be complete or incomplete.

Incomplete circuit

Complete circuit





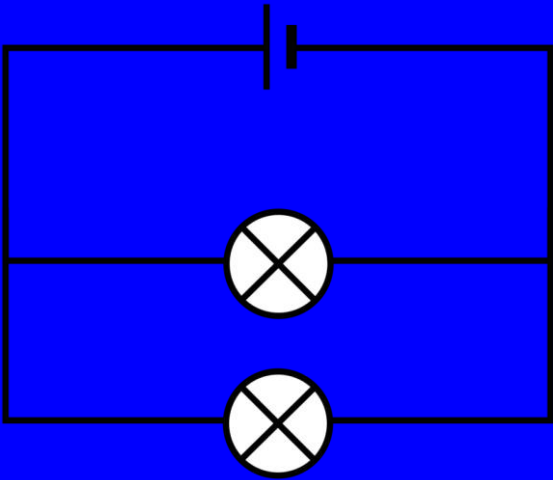
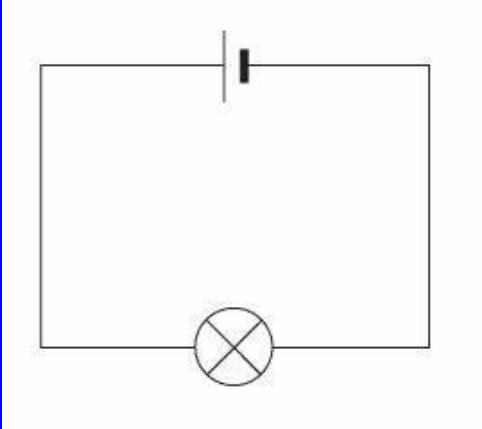
[https://www.youtube.com/watch?time\\_continue=19&v=-mmcku7KhDQ&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=19&v=-mmcku7KhDQ&feature=emb_logo)

So we can see that there are two types of circuits!

Series circuits

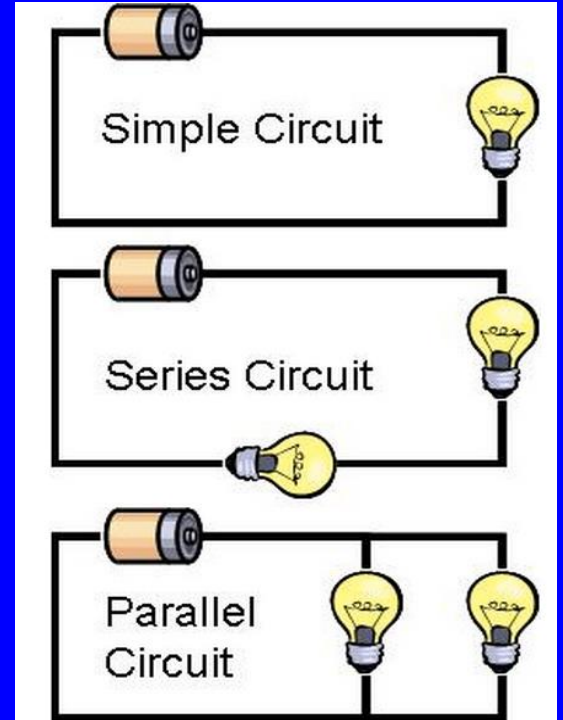
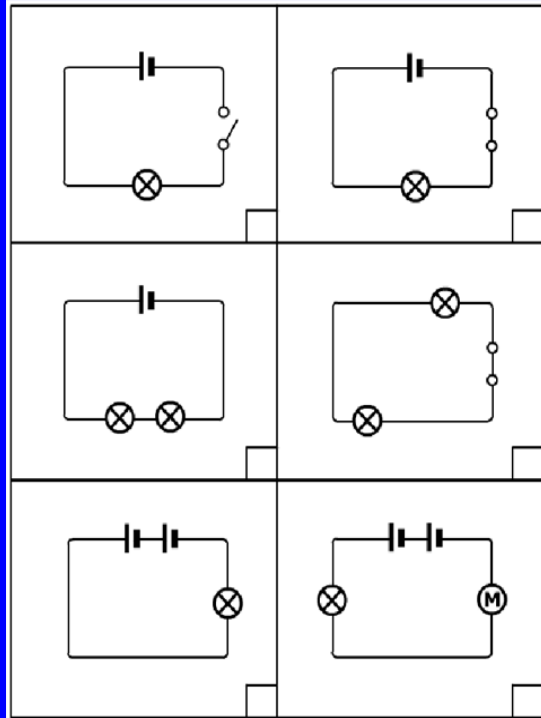
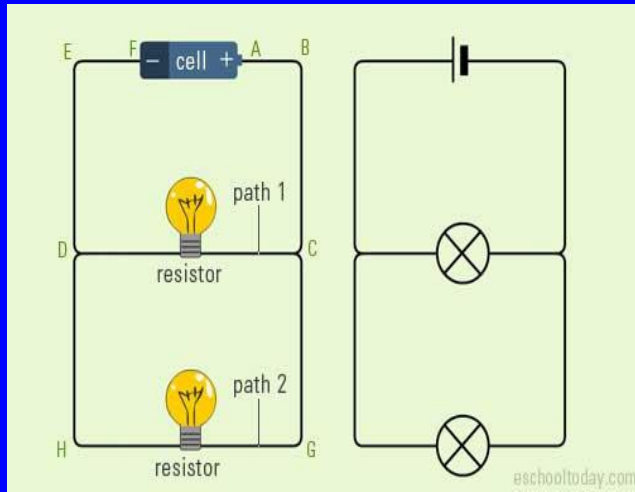
and

Parallel circuits





# These are all examples of circuits.





# Circuit symbols



Battery



Wire



Bulb



Buzzer



Motor



Switch (off)



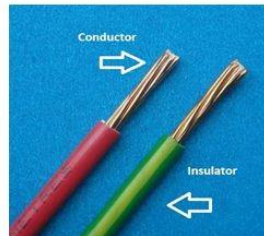
Switch (on)

Now let's think about the materials we can use to make circuits.

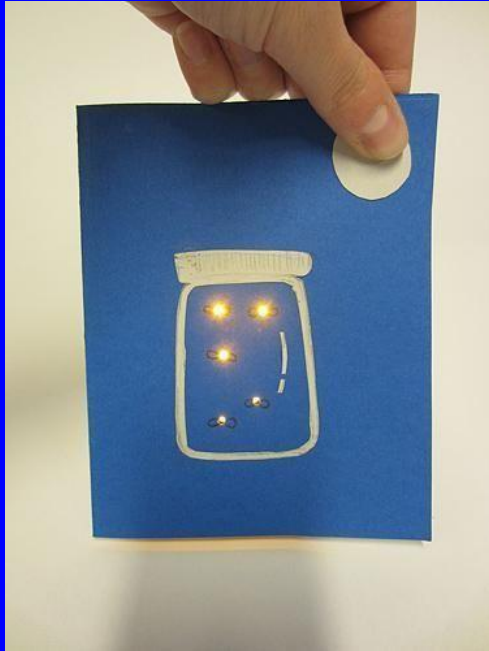
## Insulators and Conductors



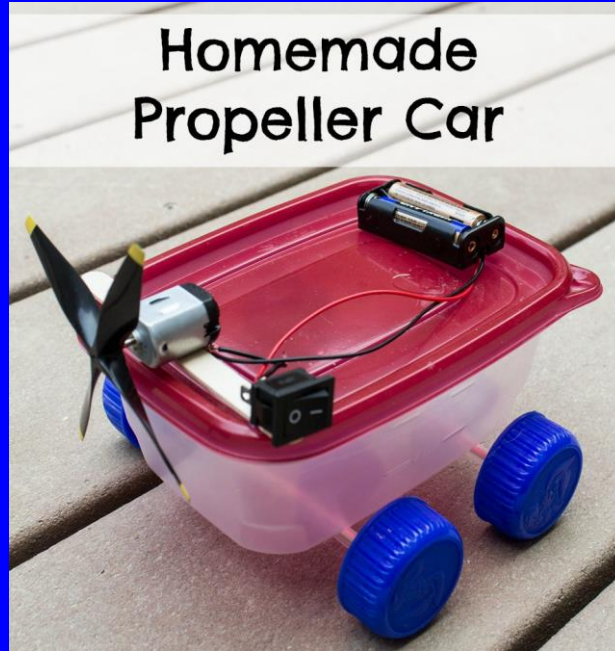
- A conductor is a material that allows charges to flow easily throughout the material.
  - Most metals are conductors.
- An insulators is a material that does not allow charges to flow easily throughout the material.
  - Glass, rubber, silk and plastic are examples of insulators.



# Designing your own circuit for an exciting product!



A card



Propeller car



Board game

# Task

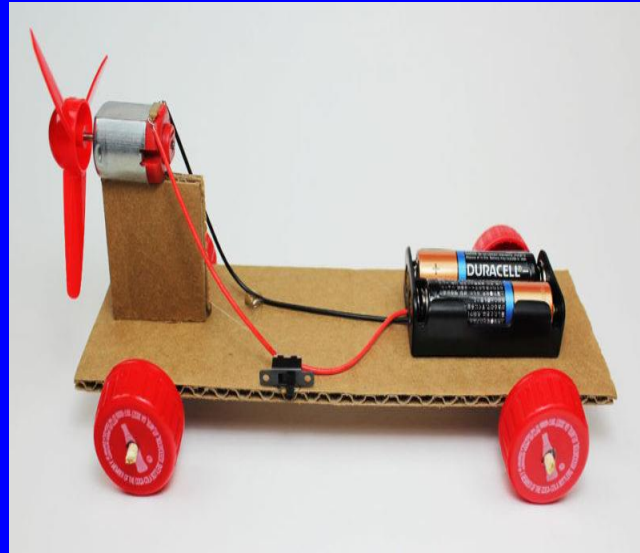
This week, you will be designing a product that uses a circuit. The possibilities are endless!

Things to consider:

- What is your product and what will it be used for?
- What kind of circuit will you use? Draw a plan of your circuit!
- What materials and components will you need for your product? Think about which materials are conductors and which are insulators!
- Who is your product for (your target market)?

## Challenge

If you have the materials and an adult to help you, you can try to actually make your product.



# Safety Rules

Always remember to ask an adult if in doubt!



[https://www.youtube.com/watch?time\\_continue=19&v=eIYVTUCpVP4&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=19&v=eIYVTUCpVP4&feature=emb_logo)

Make sure to save your designs and work as we will be using them for the next few lessons!

And remember to take pictures of your work and upload it to Google Classroom.

We can't wait to see what you have created!